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ABSTRACT

How do departmental chairpersons and deans in a major university setting manage their time? What are the major administrative activities and functions associated with such responsibilities? What relationships do these have with an ability to delegate, to control one's time for planning and self-initiated activities, or personal sense of productivity, enjoyment, and stress? This paper attempts to address these questions in the form of a time management case study, drawing on data from a staff development project for administrators in a college at a major American university. Through the use of a new sampling technique and traditional descriptive and parametric statistics, it is possible to identify, rapidly and with precision, a large number of variables that describe the work process as it relates to the above questions. The findings indicate that there is considerable commonality across individuals and that it is possible to deal with such issues as time management, job stress, and enjoyment on an organizational level. (Author)

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# TIME MANAGEMENT IN HIGHER EDUCATION ADMINISTRATION: A CASE STUDY

by

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## ABSTRACT

How do departmental chairpersons and deans in a major university setting manage their time? What are the major administrative activities and functions associated with such responsibilities? What relationships do these have with an ability to delegate, to control one's time for planning and self-initiated activities, or a personal sense of productivity, enjoyment, and stress? This paper attempts to address these questions in the form of a time management case study, drawing on data from a staff development project for administrators in a college at a major American university. Through the use of a new sampling technique and traditional descriptive and parametric statistics, it is possible to identify, rapidly and with precision, a large number of variables that describe the work process as it relates to the above questions. The findings indicate that there is considerable commonality across individuals and that it is possible to deal with such issues as time management, job stress, and enjoyment on an organizational level.

## I. INTRODUCTION

Time represents the ultimate energy crisis as a resource. It can neither be expanded nor contracted, and its effective management is a pre-condition for any other form of effective management. Unfortunately, the field of time management currently does not have a highly developed body of literature, systematic lines of inquiry or sets of principles. Although authors of articles and books in the field tend to focus on the need for effective time management, the identification of time wastage, common sense advice on restructuring and reorganizing work, and procedures for analyzing the work process in a time context, little of a systematic or empirical nature has been undertaken. This has been particularly true in the field of educational administration.

Only a few individuals have undertaken serious inquiry in this area. R. Alec Mackenzie (1972) has provided the most comprehensive bibliography on the

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executive management of time (112 entries), and has provided an integration of the conceptual frameworks of management theory and time management principles. Sune Carlson's (1951) work on executive behavior, where dimensions of executive behavior were defined and measured, is also an excellent reference. On the implementation level (in addition to the work of Mackenzie), Tor Dahl and Samuel Davis (1974), F. D. Barrett (1969) and Alan Lakein (1973) have developed extensive procedures for improving time usage, and applied these concepts to personal and institutional planning and staff development. However, the selective list of contributors discussed above represents a break from the traditional industrial engineering approach to work measurement.

Traditional work measurement and work sampling are usually associated with time and motion studies, the development of unit standards for work, and the use of especially trained observers. However, there is a two-fold problem with the use of observers: (a) The presence of the observer is likely to affect the behavior of the observed individuals (The Hawthorne Effect), and (b) there are considerable problems in assuring observer reliability.[1] Likewise, the use of time records, kept by individuals, have several disadvantages: (a) Even simple forms take an inordinate amount of time to complete, interrupt the work process, and create irritation and compliance problems. (b) The data do not exist in a machine readable format, and the classification and analysis of the data become prohibitively expensive. (c) The vehicle for self-recording is usually a time log, where the sampling procedure must be developed simultaneously in order to make the self-recording a manageable task. Often a participant will enter into the time log what he is doing every 15 minutes. This is likely to create cyclical sampling biases, since the known interval will condition behavior, and cause managers perhaps to engage in long range planning or other "desirable" activities every 15 minutes. If the sampling procedure is omitted, and the participants simply write down everything that happens during the working day, the recording task becomes prohibitively onerous and advanced

analysis is hampered by the fact that the data must first be translated into machine readable format.

A completely new development in the field of time management is the emergence of a new device and technique in the field of random sampling called the Extensor Unit[2]. Combining the measurement of attitudes and judgments with random activity sampling, the device can be used in any situation where self-recording is feasible or desirable. The Extensor Unit consists of three elements: (1) A random impulse generator, which emits signals at random intervals (30 times during an 8-hour day) by sound and by light. (2) A code list for classifying activity, function, attitude and judgment. (3) A means for storing data in computer readable format--e.g., the model used in the current study used a punch card for this purpose.

## II. OBJECTIVES OF THE STUDY[3]

During the spring of 1974, the entire administrative structure of a college in a major American university voluntarily elected to employ the Extensor Unit to undertake a self study of their time management as a staff development project. The eight chairpersons, directors and deans set out to accomplish ten different objectives:

(1) Classify, identify and improve their physical activities over time. (Instrumental Activity Dimension)

(2) Produce an inventory of job activities for each participant. (Functional Dimension)

(3) Determine the nature and amount of interaction and communication within the group and with others. (Contact Dimension)

(4) Study the process of management and administration by identifying the frequency of occurrence of various management tasks and administrative activities. (Administration Role Dimension)

(5) Study the originating authority or source for the initiation of tasks in the college. (Initiative Dimension)

(6) Identify the frequency of unplanned events occurring during the sampling period. (Planning Dimension)

(7) Define and identify the amount of inappropriate work activities by applying a judgment of whether work activities should be performed or delegated. (Delegation Dimension)

(8) Produce a subjective evaluation of the productivity of each participant, by asking them to report whether they felt productive or not. (Productivity Dimension)

(9) Measure the amount of job satisfaction and enjoyment felt by the participants and examine the associations between such satisfaction and all other variables. (Enjoyment Dimension)

(10) Measure the amount of stress felt by the participants, and examine the associations between stress and all other variables. (Stress Dimension)

The codification of these objectives and the procedures for data collection are examined in the following section of this paper.

## III. METHODOLOGY AND PROCEDURES[4]

Codification of the Objectives:

The key to any successful study of executive behavior is a carefully defined and designed code list. Each of the objectives of the study had to be translated into an appropriate dimension reflecting the objective. Each dimension had to consist of a set of complete and mutually exclusive categories. The code list, its nomenclature, definitions, categories and use were determined through an extensive process of group and individual discussions requiring approximately three to four hours of time from each administrator. In addition to definitional discussions prior to starting the study, the participants went through a week of test measuring in order to sharpen up the definitions and note any individual interpretational difficulties. In the following sections each of the ten dimensions in the study are described and discussed.

Instrumental Activity Dimension: The most basic dimension is a description of the physical, or kinetic, activities of the participants. This is called the instrumental activity dimension. These activities are performed in order to further a purpose or a function, and are generally not representing goals or ends in and of themselves.

In order to measure the instrumental activities for the participants, a list of categories that covered all possible and relevant work related instrumental behaviors was produced. The list agreed upon by the participants is reproduced below:

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1. Outgoing telephone calls (Telephone OUT)
2. Incoming telephone calls (Telephone IN)
3. Talk, meet on a one-to-one basis (Talk, meet 1:1)
4. Talk, meet with more than one, but less than five (Talk, meet 4 or less)
5. Talk, meet with five or more (Talk, meet 5 or more)
6. Write, dictate, punch Extensor Unit (Write/Dictate/Punch)
7. Think/Plan
8. Read
9. Study/Prepare
10. Edit/Sign/Update/Revise
11. Sort/File/Retrieve
12. Other

Functional Dimension: Ideally one should be able to translate each educational administrator's job description into a dimension that consists of all the tasks and processes that characterizes the purposes for which he engages in instrumental job activities. In this study the functional categories were coded in six groups: Administration, Research, Instruction, University Services, Personal and Other.

Administration Role Dimension: This study was particularly interested in the amounts of time being devoted to the different types of administrative activities. Consequently, if administration was identified as the functional task at the moment of coding, then the following additional administrative functions were available for further specification:[5]

1. Budget
2. Academic Personnel
3. Civil Service Personnel
4. Building and Space Management
5. Student Affairs
6. Instructional Support

7. Research Support

8. Planning/Development Support

9. Other

Contact Dimension: The amount of contact that an educational administrator experiences with his superiors, faculty colleagues, students and other staff contributes insight about the participant's total work environment. Because different patterns of interaction were expected, the contact dimension was different for each of the administrators; although some of the categories were the same for each participant. Following is a typical contact dimension:

1. Self
2. Faculty
3. Students
4. Secretary
5. Other Staff
6. Other College Administrators
7. Central Administration Staff
8. Dean
9. Other Deans
10. Deans with Other College Administrators
11. Family/Friends
12. Other

Initiative Dimension: A person discovers how much he controls his job, as opposed to others directing him, when the initiator of each task is recorded. Consequently, the initiative dimension was coded as to whether the activity was on one's Own Initiative or Other Initiative.

Planning Dimension: One of the most commonly emphasized functions of a manager or educational administrator is planning. Therefore, the code list contained an indicator or whether each task was Planned or Unplanned.

Delegation Dimension: Over the years many executives have accumulated tasks and duties that may have little relevance to their original job descriptions. Additionally, many educational administrators in higher education come into their positions with limited managerial experiences and/or inherit many assorted activities without ever giving proper consideration as to whether he should be (could be) delegating some of these tasks. One way of focusing on this problem and of measuring the amount of time which an executive devotes to such tasks which he feels others should be doing is through the use of the following descriptors with each task: Delegate Now; Delegate Maybe; or Do Not Delegate.

Productivity Dimension: In discussions with the administrative group, many mentioned that they often felt productive doing tasks that might not have direct relationship to their planned/unplanned dimension, or to certain physical or functional activities. Knowledge of this "sense of productivity," which is a subjective measure, may provide valuable clues for effective staff development. Consequently, the productivity dimension consisted of the two categories of Feeling Productive or Feeling Non-Productive.

Enjoyment Dimension: The amount of enjoyment which an administrator derives from various tasks and functions may be related to his productivity, unit morale, or other aspects of his position. To scale and measure this dimension three descriptors were provided: Enjoy, Neutral, and Dislike.

Stress Dimension: The amount of stress which a person feels may be related to his productivity, his job satisfaction, or other aspects of his position. Therefore, a measure of stress was included using a dichotomous distinction between feeling Stressed or Relaxed.

Procedures for Data Collection:

Data collection began on April 22, 1974, with the installation of the units. During the study, each participant responded to the unit each time the signal sounded, and entered information onto a card for all the dimensions of the study. Because the procedure is simple, it required only a few minutes per day. The

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project was conducted for six weeks, the first week being a test of the adequacy of the code list. Because several participants worked during their lunch hour, the units were on from the moment participants reached the office until they left for home. In addition, if they did work away from the office, they were to enter any pertinent information upon returning to their offices, estimating four signals per hour. This stipulation included work at home, particularly over weekends. In this way, a more realistic picture of each person's job was obtained.

During the five weeks of measurement, the study produced a total of 6,855 complete observations in ten dimensions, yielding a total of 68,550 randomly collected pieces of information. The final data base represented a substantial achievement in activity sampling in terms of the detail and precision of the data.[6]

## IV. FINDINGS OF THE STUDY

Time Illusion:

Prior to the initiation of the study, each participant estimated the distribution of his time for his instrumental activities and his functional activities. To measure the extent of "time illusion" among the participants, the estimate versus actual distribution for each participant was tested by chi-square for significant differences. Surprisingly, all twelve participants had actual distributions for both their instrumental and functional activities which were significantly different from their estimated distributions at the .95 confidence level. There is thus clear evidence that the participants did not have a correct picture of how their time was being spent. This is an important finding, because a large amount of planning and decision making is executed on the basis of data submitted in questionnaire form, using individual estimates of the type used above for the time estimates. It was also an important learning experience for each participant to note where his subjective estimates differed from his actual findings. The findings of the study are presented in Table 1.

Insert Table 1

Table 1

Averages and Ranges of Time Spent by the Administrative Group

| | Averages | | Ranges of Actual | |
|---|---|---|---|---|
| | Estimate | Actual | High | Low |
| 1) Instrumental Activities: | | | | |
| a) Telephone Out | 4.2% | 2.5% | 7.5% | .8% |
| b) Telephone In | 4.8 | 1.4 | 5.1 | .5 |
| c) Talk, meet 1:1 | 21.8 | 22.1 | 37.7 | 7.3 |
| d) Talk, meet 4 or less | 12.7 | 11.0 | 21.4 | 3.2 |
| e) Talk, meet 5 or more | 12.5 | 35.5 | 65.7 | 15.0 |
| f) Write/Dictate/Punch | 8.7 | 6.1 | 14.3 | 2.6 |
| g) Think/Plan | 5.9 | 2.1 | 12.5 | 0 |
| h) Read | 7.3 | 5.4 | 13.8 | .4 |
| i) Study/Prepare | 5.1 | 4.7 | 11.9 | 0 |
| j) Edit/Sign/Update/Revise | 7.9 | 3.4 | 8.4 | .1 |
| k) Sort/File/Retrieve | 3.9 | 1.1 | 2.5 | 0 |
| l) Other | 5.2 | 4.7 | 22.3 | 0 |
| 2) Function: | | | | |
| a) Administration Role | 50.4% | 44.2% | 87.5% | 13.3% |
| b) Research | 16.5 | 8.5 | 29.9 | .9 |
| c) Instruction | 13.7 | 15.9 | 30.3 | 1.0 |
| d) University Services | 13.6 | 21.2 | 46.7 | 2.0 |
| e) Personal | 4.4 | 3.4 | 8.2 | 1.0 |
| f) Other | 1.4 | 6.8 | 10.9 | 0 |
| 3) Administration Role: | | | | |
| a) Budget | | 5.7% | 22.8% | .6% |
| b) Academic Personnel | | 11.9 | 36.1 | 2.1 |
| c) Civil Service Personnel | | 2.2 | 4.6 | 0 |
| d) Building & Space Management | | 3.3 | 6.4 | 0 |
| e) Student Affairs | | 2.0 | 4.9 | 0 |
| f) Instructional Support | | 3.0 | 13.7 | 0 |
| g) Research Support | | 1.2 | 2.1 | 0 |
| h) Planning/Development Support | | 12.3 | 22.7 | 6.3 |
| i) Other | | 2.6 | 6.5 | 0 |
| 4) Initiative: | | | | |
| a) Own Initiative | | 46.4% | 52.2% | 32.7% |
| b) Other Initiative | | 53.6 | 67.3 | 47.8 |
| 5) Planning: | | | | |
| a) Planned | | 78.8% | 90.2% | 56.4% |
| b) Unplanned | | 21.2 | 43.6 | 9.8 |
| 6) Delegation: | | | | |
| a) Delegate Now | | 4.6% | 23.8% | 0 |
| b) Delegate Maybe | | 12.5 | 43.3 | 0 |
| c) Do Not Delegate | | 82.9 | 100 | 39.5 |
| 7) Productivity: | | | | |
| a) Feeling Productive | | 86.0% | 98.1% | 72.2% |
| b) Feeling Non-Productive | | 14.0 | 27.8 | 1.9 |
| 8) Enjoyment: | | | | |
| a) Enjoy | | 55.6% | 88.2% | 15.7% |
| b) Neutral | | 33.6 | 79.3 | 7.9 |
| c) Dislike | | 10.6 | 41.1 | 1.2 |
| 9) Stress: | | | | |
| a) Stressed | | 16.1% | 32.5% | 7.4% |
| b) Relaxed | | 83.9 | 92.6 | 67.5 |

Data Results:

The single most important finding in the Instrumental Activities Dimension is the large amount of time spent in meetings with a total of 68.6 percent of the time. Although classroom instruction accounts for 15.9 percent of this figure, the total time devoted to meetings is still considerably more than the 47 percent which was estimated in advance. Individual variations are also large for all types of meetings. Other findings indicate that, contrary to expectations of high time consumption, only 3.9 percent of the time is consumed by telephone calls, whether externally or internally initiated. Time to think as an unrelated instrumental activity was estimated in advance at 5.9 percent, or 3½ hours per week; in reality it emerged as 2.1 percent, or only about 65 minutes per week. The manual routines of sort/file/retrieve only ranged from 2.5 percent to 0 percent, with an average of 1.1 percent. This is an activity which appropriately has been virtually eliminated through an effective use of secretaries, file clerks or assistant personnel. The key categories in all of this, however, are the three meeting time activities wherein the most important potential reallocations of time are likely to take place.

The Functional Dimension constitutes an inventory of job activities for each individual participant and consequently should be different for each participant. However, a number of patterns did emerge. On the average, less than half (44.2 percent) of the time of all the senior administrators in the college is actually devoted to purely administrative activities. This finding is consistent with the "ethos" of governance in higher education wherein most administrators at collegiate and departmental levels are expected to continue in their professorial roles in some meaningful manner. However, time devoted to research (8.5 percent) was significantly overestimated, while time devoted to university services (21.2 percent) was similarly underestimated.

It should be mentioned that the value of a completely updated and accurate job description is considerable. The efficacy of management by objectives can

be judged on the basis of what each objective consumes of resources over a specific period of time, leading to a reassessment of appropriate objective generation. The results may also be used in personnel management to train successors to take over jobs where the functions have been clearly defined and measured.

The Administration Role Dimension indicates a great amount of variance between individuals in dealing with their administrative roles. However, as expected, budget, academic personnel and planning/development take up over two-thirds of their administrative time (or almost one-third of their total time). Very little time, on the average, is being devoted to instructional and research support or to student affairs in their administrative roles.

Since each participant had a different code for interactions, it is not possible to show a complete Contact Dimension without violating confidentiality. The contact dimensions represented a socio-grammatic picture of the internal communication patterns of the group, and identified the channels and pathways of their interactions for each individual. This was a most interesting dimension from several participant's point of view, and it uncovered "islands of non-communication" that spurred a number of changes in communication patterns subsequent to the presentation of results.

It is interesting to note that the use of time is predominantly planned (78.8 percent) in this college organization, although the range was significantly different for at least two of the participants.[7] For the group as a whole it is surprising that so much of the work is planned (or "anticipated" as defined by some of the participants), given the academic environment and the supposed nature of administrative constituencies in higher education -- i.e., students, faculty, the public and other university units. An academic environment with an "open door" and "participatory" management policy with multiple constituencies and frequent unstructured interactions was thought to

present a major obstacle to a highly planned schedule. However, this apparently did not happen in this college.

On the other hand, although time is heavily planned, less than half of the participant's time and activities are self initiated. Apparently, the participants in this college do serve (or respond to) the initiative of others.

The Delegation Dimension is a crucial dimension for judging appropriateness of work activities. It is remarkable that 82.9 percent of the work is not judged to be delegable by the participants. This may indicate that the work is already optimally divided, or that skills in delegation need to be taught to the group. In any case, 4.6 percent to 17.1 percent of the work could be delegated by the participant's own judgment--freeing anywhere from two to nine hours per week for other purposes for each participant.[8]

Although there are wide variations in the "sense of productivity" reported (98.1 percent to 72.2 percent), the average of 86.0 percent indicates a high level of productivity perceived by the participants.[9] This proved to be a valuable classification when it came to the evaluation of the data, wherein each individual matched his non-productivity classification against the relevant activities or functions in two-way tabular formats.

Although the average amounts of stress and dislike felt in the organization were only 16.1 percent and 10.6 percent of the time respectively, their large ranges certainly warrant closer examination. The most stressed administrator was stressed 32.5 percent of the time, and the least stress participant was stressed 7.4 percent of the time. Clearly the stress in the administrative structure of the college was unevenly distributed. Feelings of enjoyment were similarly distributed wherein one participant enjoyed his role only 15.7 percent of the time and held feelings of dislike 41.1 percent of the time.

The important question, both to this group of administrators and to governance in higher education generally, is whether there are common factors contributing to stress and feelings of job dissatisfaction across all

individuals in the management sample. If so, what are these common factors? If there are such common factors contributing organizationally to stress and job dissatisfaction, and if an organization can identify and administratively isolate and control such common factors, then appropriate organizational and administrative action can be taken so as to minimize any undesirable effects.[10]

Relationship Between Stress and Other Dimensions:

In order to measure the associations between stress and the other dimensions and to correct for the effect of such influences, a multivariate, linear regression analysis was performed on the data, using stress as the dependent variable.[11] The results are presented in Table 2.

Insert Table 2

A number of ways may be used to present regression results in a comprehensible manner. Perhaps the most straightforward interpretation is to view stress as the net result of positive and negative forces.[13] Using the total, weighted average of stress between participants (16.2 percent of total time), it is possible to express this figure as the difference between the sum of all positive terms in the regression equation plus the sum of all negative terms where the average of each variable has been multipled by the corresponding regression coefficient, plus the constant.

The reason for this procedure is the need to represent fairly the amount of administrative stress over time in the organization. Stress can be measured both by intensity and duration. For example, the process of receiving telephone calls may cause much stress while it lasts (regression coefficient is +.17), but the total amount of time spent on the telephone may only be a small fraction (actually 1.2 percent of the time). Table 2 takes both of these influences into account and shows the product of stress intensity (the regression coefficient) and stress duration (the average amount of time consumed by the variable).[14] "Telephone In" is thus found to add less than 2 percent to total

Table 2

Stress Intensities and Average Duration for Administrative Group

| Stress Increasers: | (A) Stress Intensity (Regression Coefficient) | (B) Average Duration (Average Weighted Value) | (C) Total Effect (AxBx100) |
|---|---|---|---|
| Meeting 5 or more | .163 | .376 | 6.1 |
| Delegate | .082 | .218 | 1.8 |
| Meeting 4 or less | .167 | .101 | 1.7 |
| Academic Personnel Adm. | .117 | .119 | 1.4 |
| Meeting 1:1 | .049 | .197 | 1.0 |
| Budget | .081 | .057 | .5 |
| University Governance | .077 | .058 | .4 |
| Prof. Assn./U. Suppt. | .085 | .053 | .4 |
| Think/Plan | .079 | .038 | .3 |
| Telephone In | .167 | .012 | .2 |
| Constant | — | -- | 30.8 |
| | | TOTAL | 44.6 |
| Stress Reducers: | | | |
| Hours of Work | -.0002 | 804.517[12] | -18.4 |
| Enjoy | -.136 | .327 | -4.4 |
| Planned | -.034 | .795 | -2.7 |
| Dean | -.047 | .352 | -1.7 |
| Instructional Support | -.108 | .030 | -.3 |
| Bldg. & Space Mgmt. | -.074 | .034 | -.3 |
| Consulting/Other Source | -.126 | .104 | -.2 |
| Other Instruction | -.130 | .015 | -.2 |
| Civil Service Personnel | -.109 | .022 | -.2 |
| | | TOTAL | -28.4 |

| | |
|---|---|
| Stress Increasers | 44.6% |
| Stress Reducers | 28.4% |
| Net Stress | 16.2% |

stress, while meetings of five or more people (which is stress increasing with a regression coefficient of .16) increases stress by 6.1 percent due to their frequency and time consuming nature (about 37 percent of the time).

The significance of the regression equation in Table 2 indicates that the common variables regression has explained 16.5 percent of all the stress across administrators in the organization. Although the $R^2$ is relatively low, it was unexpected that even this much commonality could exist across individuals, and that so many influences could be identified as statistically significant variables in explaining administrative stress.[15]

Clearly there are individual variations that are unique to each administrator. In other words, while most administrators are stressed by a core of common influences, there are bound to be influences that remain unique to each individual. Such influences on individuals can be studied in the same manner with individualized regressions, and they spotlight the ability of certain individuals to handle activities that would be more stressful to others.[16]

It is instructional to view oneself from the perspective of a "personal" stress regression. One can compare the organizational findings with one's own. The individual-specific relationships to stress are likely to show idiosyncratic deviations from the organizational findings, adding insights about individual differences in their reactions to stress.

Thus individualized regressions may point towards actions that could relieve stress and tension for the participant. Once an individual decides to reorganize his work activities, it becomes possible to estimate, using the individualized regression equation, by how much his sense of stress will be changed and the direction of this change. This opens up an excellent opportunity to experiment with changes "on paper" and to predict outcomes without engaging in human experimentation. However, what is possible to do for individuals, can be done for organizations as well.

Significantly, although pure administration was involved in the administrative group's functional dimension only 44 percent of the time, the greatest total impact of stress increasing variables appear to be assignable to this role. Academic personnel administration, budget, and meetings made up the bulk of the identifiable stress increasers.[17] Very little of the conventional professorial role can be associated with stressful situations.

It is important to note that meetings are by far the single most stressful event. With meetings involving over 68 percent of the participant's total time, it is perhaps no wonder that stress emerges with strong association. Although the high incidence of meetings may be a function of "participatory democracy" in the governance of higher education, if the college or an individual wishes to reduce administrative stress and/or release time for such alternative activities as thinking, planning, reading or writing then certainly the reduction or reorganization of meetings should be a first-order concern.

The judgment that a task could (or should) be delegated was also a significant contributor to stress. With over 20 percent of the events for the group average being in this prescriptive category, clearly many individuals should systematically re-examine their activities for such delegation.

As might be expected, if an administrator both enjoyed and planned his activities, stress was significantly reduced. Significant also was the fact that working as an administrator in the Office of the Dean contributed to stress reduction.

However, the single greatest stress reducer was the number of hours worked each week. Paradoxically, the more hours and time voluntarily devoted to the administrator's role assignment, the less stressed were the participants. The most likely explanation is that a long work week possibly permits an orderly coping with events that, if they were hurried, would produce stress. Thus a short work week may only be accomplished at the cost of increased stress.

In separate regressions with "enjoyment" scaled as the dependent variable similar results were found. Meetings, academic personnel administration, stress, building and space management activities were all heavy contributors to job dissatisfaction. On the other hand, planned activities, a sense of being productive, conducting research and participating in instruction were all significant enjoyment increasers of considerable importance in total effect. Consistent with the stress regressions, the professorial roles associated with the administrators were the most enjoyed while the administrative activities were the most disliked.

The only major exception between the two regressions with stress and enjoyment was in the significance of hours of work. The single greatest enjoyment reducer was hours of work while, paradoxically, this was also the single largest stress reducer. Thus, in order to enhance job satisfaction by cutting back on the number of hours worked (currently over 55 hours each week), the administrative group may have to absorb some additional stress (or, simultaneously, redirect effort away from other stress inducers to compensate for the increased stress as a result of the reduced work week).

It should be kept in mind that in changing behavior in order to respond to these findings, one must keep the overall objectives of the organization and college in mind. In this setting a series of organizational changes are being made based on findings from this study, but using criteria in addition to administrative stress reduction and/or enjoyment enhancement.

The Evaluation Phase of the Staff Development Project:

The total number of dimensions presented in Tables 1 and 2 and discussed in this paper may be analyzed in 1x1 tables. This will produce a total of 45 two-way tables, where each dimension may be cross-classified against every other dimension. Although these tables are not presented in this paper, they were prepared for the administrative group. Suffice it to say, that each individual participant had access to all relevant cross-tabulations to track

down his personal sources of delegable work, stress, non-productivity, unplanned work and enjoyment. With the insights gained from this process, the evaluation phase in the staff development project could be initiated.

The evaluation process consisted of each participant reviewing his personal reports and determining how much time could be released by identifying time waster activities, and by taking appropriate steps to correct these. Each participant next had the opportunity to develop his own list of priority items (and the time required) that he wanted to address himself to on the job. Each participant then had the opportunity to match these up in the form of a time budget for implementation.

## V. SUMMARY AND CONCLUSIONS

Until recently, there was no economic, accurate or effective system to randomly sample behavior, attitude and judgment in an organization. Unless such a data base could be produced, the presence of a substantial time illusion would hamper the accurate assessment of proper time management procedures. Fortunately, the instrumentation used in this study permits such an in-depth analysis of organizational functioning, individual interaction and attitudinal sets.

The data in this study revealed the administration of an educational organization that engaged in frequent meeting behavior between individuals and groups that were used to act on someone else's initiative over half of the time, in a planned manner, oriented to tasks that they generally did not feel could be delegated. They operated approximately half of the time as administrators while devoting their other time to professorial roles. They generally felt satisfied, productive and relaxed. However, there was considerable variance between individuals. Upon being presented with the results from the study, they had the opportunity to identify a series of action steps that could be initiated in order to improve their present time allocations.

It is generally recognized that employee-initiated changes in behavior are easier to institutionalize than changes ordered from above by fiat. In addition, the fact that participants are studied on the job, makes it possible to examine organizational problems and concerns where and when they exist. This is a rather different approach to staff development than the sending of employees or administrators to outside training programs. In the latter case, assuming that the program topics are appropriate, the organization loses the seminar participant's time away from work, and is faced with a probable conflict upon the time of their return. The reason for this is the fact that the organization is unlikely to have changed its ways in the interim, while the seminar participants quite likely have undergone changes in both attitude and judgment. There is thus the potential for conflicts between the inertia of organizational change and the frustration of individual change agents. On-the-job staff development seems to stand a better chance of dealing with changes, since they can be addressed by everyone within a shared work environment.

In this study, time management was the theme of the overall staff development project. The project had to start by the participants establishing a precise baseline data base for all dimensions of interest to them. Then the skills for approaching and analyzing the data had to be imparted in order to identify the desirable changes in individual behavior. Finally, the changes had to be institutionalized through a process of communication, commitment and motivation.

Through the use of traditional statistical techniques and the sampling technique of the Extensor Unit, it was also possible to identify, rapidly and with considerable precision, a large number of variables that identified and described the work process as it related to stress and enjoyment in the organization.

The findings indicate that there is considerable commonality across individuals in their reaction to stress and in their work satisfactions. The

revelation of these common reactions makes it possible to deal with stress and job enjoyment on an organizational level. This may be accomplished by applying appropriate procedures for coping with unavoidable stress, avoiding stress producing activities, or by substituting stress reducing activities for the participants in the study. Similar procedures can be instituted for enhancing enjoyment as well.

It is generally accepted that most managers should be able to clear about 25 percent of their time with little or no drop in current output. A major goal for this administrative group, who worked an average of 55 hours a week, was to approach a normal work week with reduced stress and increased enjoyment. The study provided the necessary information for the realization of such a goal.

FOOTNOTES

1) Owen Gilbert (1968) estimates that observers may deviate 10 to 20 percent from the group mean.

2) The Extensor Unit was invented and developed by a Swedish firm, System Frekvensor AB, in 1969, and introduced to a variety of uses in Scandinavia and England over the last few years. The unit became available in the United States in 1974 through The Extensor Corporation and was first used on the American continent in a study of hospital managers during early 1974.

3) The conceptual design for this study was adapted from a similar project conducted for hospital administrators by Tor Dahl and Samuel Davis (1974).

4) The newness of the methodology and procedures employed in the study forces a prominent emphasis on procedural rather than theoretical issues in this paper. For the proper integration of these findings with the theory of higher education administration, the reader is advised to pursue these issues separately.

5) Similar subfunctional specifications were also provided in the codings for research, instruction, university services, personal and other. Although these data are not reported in this paper, they were available to the participants and provided insights into their other professorial roles at the university.

6) With the Extensor Unit the transition from random point-in-time observations to percentage time devoted to each activity is relatively simple. Each observation is a vector of data, covering all dimensions in the study. Assume that 1,000 observations were made. Assume also that 788 of these observations were deemed to relate to "planned" events, and 212 to "unplanned" events. When strictly random conditions prevail, it is permissible to infer that 78.8 percent of total time is planned, and the remainder, 21.2 percent, is unplanned. This is, of course, subject to sampling error, which in turn is related to the number of observations in each sampling category. The sampling errors were calculated for each dimension for each participant. It should be pointed out that the numbers reported in this paper are unbiased point estimates of activities.

7) Most writers in the field of management feel that a too highly structured and planned workday limits flexibility and effective functioning. Usually a 50 percent pre-planning of managerial time is recommended.

8) The academic administration environment does rely on a strong civil service structure that is a permanent adjunct to a (frequently) high-turnover academic managerial structure. The finding that academic management judges its work to be largely non-delegable is interesting in view of the on-going expertise of top-level assistants in the civil service structure.

9) It should be stressed that this represents individual and collective perspectives of the administrators only, not any "neutral" collegiate view.

10) It has been appropriately pointed out by one of the referees that favorable behavioral modification by the administrators may be a sub-optimization--i.e., that there may be possible external effects (adverse or favorable) on other members of the organization (faculty, civil service staff and students) as a result of the behavioral modification. It is indeed possible that the faculty may experience increased stress or less enjoyment if meetings were curtailed and collegiality abridged. Additionally, if the study were expanded to include all members of the college under study, a similar argument may be made from the vantage point of the total university. However, this study does not pretend to generalize beyond the limitations of the sample. Whatever externalities there might be within the college or the university cannot be identified by means of the data base from the current study.

11) A multivariate, linear stepwise regression was run on the University of Minnesota UMST 580 Computer Program, using the CDC Cyber 7000 computer. A total of 46 independent variables were run against stress as a dependent variable, using dummy variable coding for non-scaled variables. Excluding non-significant variables by the F-test (significance level .95), the final equation contained 19 variables with 6,855 observations. The $R^2$ was .165, the standard error of estimate was .337, and the constant was .308. The desirability of discussing each deleted variable and its relationship to tne remaining variables, the possibility of heteroschedasticity and linear dependence are all methodological issues that ideally should be discussed in depth relative to this study. However, space limitations preclude such a discussion in this paper. Moreover, there is ample literature available on stepwise, linear, multiple regression, and the reader is better advised to go directly to those sources.

12) 804.517 represented the average number of observations per participant. Because, on the average, there were four observations per hour, the total sample comprised about 201 work hours per participant for the five week sample period. However, vacations and holidays during the period of the study did reduce the <u>average</u> sample observations considerably below the normal 55 hours per week.

13) It can be proved that $\bar{Y} = c + a_1\bar{x}_1 + a_2\bar{x}_2 + a_3\bar{x}_3 + \ldots + a_n\bar{x}_n$ for a least-squares regression. Thus average stress ($\bar{Y}$) may be analyzed as a sum of components showing each variable's contribution (positive or negative) to total average stress.

14) Average values for the variables in Table 2 differ slightly from those presented in Table 1. Two participants were excluded from the regression in Table 2 because their functional dimension was coded differently from the other participants.

15) An $R^2$ of 16.5 is neither unusually high or low as compared with other studies in the field. However, an important statistic is the F-test for variance significance utilized to screen regression variables. The level of significance used for all the statistical tests in the study was .95.

16) The $R^2$ also increases when individual regressions are run, indicating a better specification of the stress problem when purely individual variables are used.

17) Statistically significant positive zero-order correlation coefficients between stress and these variables also corroborate these findings.

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